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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,318	12/26/2006	Junichi Nakamura	294695US0PCT	5709
22850	7590	05/12/2010		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MEKHLIN, ELI S	
			ART UNIT 1795	PAPER NUMBER
			NOTIFICATION DATE 05/12/2010	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/588,318

**Applicant(s)**

NAKAMURA ET AL.

**Examiner**

ELI S. MEKHLIN

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/200)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

**DETAILED ACTION**

(1)

Applicant's Amendment filed February 26, 2010, has been entered. Applicant amended claims 1-6 and added claims 7-11. No new matter has been added. Claims 1-11 are pending before the Office for review.

(2)

***Response to Arguments***

Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection. Specifically, Applicant correctly pointed out that Examiner incorrectly stated that Yanagese uses nonionic surfactants, as required by the claimed invention.

Additionally, Applicant's Declaration also raises a new ground of rejection, as will be discussed below. Finally, Examiner notes that the Declaration has been considered in some respects but is not persuasive because Applicant's understanding of the invention (see Paragraphs 2(a) -(f)) is not commensurate in scope of Applicant's claimed invention.

(3)

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the

elements. See MPEP § 2172.01. The omitted elements are: the anionic and nonionic surfactant. Specifically, the Declaration filed February 26, 2010, makes clear that the anionic and nonionic surfactant are essential to create a coating comprising wherein an area of colloidal silica exposed at a coating surface occupies 35% or more of the coating surface.

(4)

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3 and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagase et al. (JP 0916554 A) in view of Fujii et al. (U.S. Publication No. 2002/0134026).

With respect to **claim 1**, Yanagase teaches a coating composition that comprises an emulsion of a graft block copolymer and colloidal silica. Paragraphs 10 and 11. The colloidal silica is added in its solid form to the emulsion at a ratio of 1 to 300 parts of silica per weight of parts polymer, which covers the claimed range. Paragraph 11. As per MPEP 2144.05, when claimed ranges lie inside ranged disclosed by the prior art, a *prima facie* case of obviousness exists. Additionally in a working example, Yanagase teaches that the colloidal silica has a particle size of 10 to 20 nanometers, which is less than 60 nanometers. Paragraph 70. Finally, Yanagase teaches that a coating composition further comprises sodium polyoxyethylene alkylphenyl ether sulfate, a sulfate salt of polyoxyalkylene alkylaryl ether (anionic surfactant) but is silent as to

whether any other components are added to the composition to ensure that the area of colloidal silica exposed at a coating surface occupies 35% or more of the coating surface.

However, Fujii, which deals with coating agents, teaches that a nonionic surfactant can be added to coatings as a dispersing agent for colloidal silica particles. Paragraph 76.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention to include a nonionic surfactant in the coating composition taught by Yanagase because Fujii teaches that doing so disperses the colloidal silica. Fujii, Paragraph 76. Finally, a person having ordinary skill in the art at the time of invention would have appreciated that the coating taught by Yanagase and Fujii, as combined above, meets the 35% requirement of the claimed invention because the coating meets the compositional requirements of the present claim and it necessarily follows that identical coating compositions have identical properties. Moreover, the coating composition taught by Yanagase and Fujii is identical to the comparative coating taught by Applicant in the Declaration, meaning it would be expected to have a coverage area of 97%. See Declaration.

With respect to **claim 2**, Yanagase and Fujii, as combined above, teach a coating composition that comprises an emulsion of a graft block copolymer and colloidal silica. Yanagase, Paragraphs 10 and 11. The colloidal silica is added in its solid form to the emulsion at a ratio of 1 to 300 parts of silica per weight of parts polymer, which covers the claimed range. Yanagase, Paragraph 11. As per MPEP 2144.05, when

claimed ranges lie inside ranged disclosed by the prior art, a *prima facie* case of obviousness exists. Additionally in a working example, Yanagase teaches that the colloidal silica has a particle size of 10 to 20 nanometers, which is less than 60 nanometers. Yanagase, Paragraph 70. Yanagase further teaches that a coating composition further comprises sodium polyoxyethylene alkylphenyl ether sulfate, a sulfate salt of polyoxyalkylene alkylaryl ether (anionic surfactant). Yanagase, Paragraphs 46 and 53. Fujii teaches that a nonionic surfactant can be added to coatings as a dispersing agent for colloidal silica particles. Paragraph 76.

Finally, with respect to the polymer composition, Yanagase teaches that the polymer can comprise a monomer, which can be polymerized via radical polymerization, having dimethylsiloxane, a hydrolysable silyl group, and a vinyl monomer unit. Paragraph 11. Specifically, Yanagase teaches that the content of the vinyl monomer unit comprises 50 to 98 wt-% of the entire polymer, meaning that the remainder of the polymer unit comprises the radical polymerizable unit containing hydrolysable silyl units. Paragraph 40. The ranges of these monomer components in the polymer overlap with the claimed ranges, establishing a *prima facie* case of obviousness. See MPEP 2144.05. Yanagase teaches that the radical polymerizable monomer unit having the hydrolysable silyl group comprises up to 2 wt% of the polymer ( 2 parts by mass) and that the vinyl monomer (copolymerizable monomer) comprises the remainder. Paragraph 40.

With respect to **claims 3, 8 and 9**, Yanagase and Fujii, as combined above, teach a coating composition that comprises an emulsion of a graft block copolymer and

colloidal silica. Yanagase, Paragraphs 10 and 11. The colloidal silica is added in its solid form to the emulsion at a ratio of 1 to 300 parts of silica per weight of parts polymer, which covers the claimed range. Yanagase, Paragraph 11. As per MPEP 2144.05, when claimed ranges lie inside ranged disclosed by the prior art, a *prima facie* case of obviousness exists. Additionally in a working example, Yanagase teaches that the colloidal silica has a particle size of 10 to 20 nanometers, which is less than 60 nanometers. Yanagase, Paragraph 70. Yanagase further teaches that a coating composition further comprises sodium polyoxyethylene alkylphenyl ether sulfate, a sulfate salt of polyoxyalkylene alkylaryl ether (anionic surfactant). Yanagase, Paragraphs 46 and 53. Fujii teaches that a nonionic surfactant can be added to coatings as a dispersing agent for colloidal silica particles. Paragraph 76.

Additionally, a person having ordinary skill in the art at the time of invention would have appreciated that the coating taught by Yanagase and Fujii, as combined above, meets the 35% requirement of the claimed invention because the coating meets the compositional requirements of the present claim and it necessarily follows that identical coating compositions have identical properties. Moreover, the coating composition taught by Yanagase and Fujii is identical to the comparative coating taught by Applicant in the Declaration, meaning it would be expected to have a coverage area of 97%. See Declaration.

Finally, with respect to the polymer composition, Yanagase teaches that the polymer can comprise a monomer, which can be polymerized via radical polymerization, having dimethylsiloxane, a hydrolysable silyl group, and a vinyl monomer unit.

Paragraph 11. Specifically, Yanagase teaches that the content of the vinyl monomer unit comprises 70 to 95 wt-% of the entire polymer, meaning that the remainder of the polymer unit comprises the radical polymerizable unit containing hydrolysable silyl units.

Paragraph 40. The ranges of these monomer components in the polymer overlap with the claimed ranges, establishing a *prima facie* case of obviousness. See MPEP 2144.05. Yanagase teaches that the radical polymerizable monomer unit having the hydrolysable silyl group comprises up to 5 wt% of the polymer ( 5 parts by mass) and that the vinyl monomer (copolymerizable monomer) comprises the remainder.

Paragraph 40.

With respect to **claim 5**, Yanagase and Fujii, as combined above, teach that the coating composition is used in a process wherein the coating is provided on a substrate to produce a coated substrate. Yanagase, Paragraphs 62-65. Additionally, a person having ordinary skill in the art at the time of invention would have appreciated that the coating taught by Yanagase and Fujii, as combined above, meets the 35% requirement of the claimed invention because the coating meets the compositional requirements of the present claim and it necessarily follows that identical coating compositions have identical properties. Moreover, the coating composition taught by Yanagase and Fujii is identical to the comparative coating taught by Applicant in the Declaration, meaning it would be expected to have a coverage area of 97%. See Declaration.

With respect to **claim 6**, Yanagase and Fujii, as combined above, teach that the coating composition is used to produce a coating on a substrate, forming a coated article. Yanagase, Paragraphs 64 and 65.



With respect to **claim 7**, Yanagase and Fujii, as combined above, teach that the composition comprises sodium polyoxyethylene alkylphenyl ether sulfate, a sulfate salt of polyoxyalkylene alkylaryl ether (anionic surfactant). Yanagase, Paragraphs 46 and 53. Fujii also teaches that a nonionic surfactant can be added to coatings as a dispersing agent for colloidal silica particles. Paragraph 76.

With respect to **claim 10**, Yanagase and Fujii, as combined above, teach that the coating composition is used to produce a coating on a substrate, forming a coated article. Yanagase, Paragraphs 64 and 65.

(5)

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagase (JP 09165554 A) in view of Greigger (U.S. Patent No. 4,435,219).

With respect to **claim 4**, Yanagase teaches a coating composition that comprises an colloidal silica. Paragraphs 10 and 11. The colloidal silica is added in its solid form to the emulsion at a ratio of 1 to 300 parts of silica per weight of parts polymer, which covers the claimed range. Paragraph 11. As per MPEP 2144.05, when claimed ranges lie inside ranged disclosed by the prior art, a *prima facie* case of obviousness exists. Additionally in a working example, Yanagase teaches that the colloidal silica has a particle size of 10 to 20 nanometers, which is less than 60 nanometers. Yanagase, Paragraph 70.

Yanagase is silent as to whether the an organic solvent having less than 0.8 of distribution coefficient of octanol/water is added to the coating at 0.5-20 parts by mass.

However, Greigger, which deals with colloidal silica coating compositions, teaches that coatings that contain alcohols (organic solvent) have improved stability, temperature resistance and water resistance. Col. 2, Lines 3-6, Col. 4, Lines 35-42.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention to add an organic solvent, such as isopropanol, which has an octanol/distribution coefficient of 0.05, to the composition taught by Yanagase because Greigger teaches that doing so improves stability, temperature resistance and water resistance of the coating. Col. 2, Lines 3-6, Col. 4, Lines 35-42. Finally, as seen in Example 1 (Col. 9), Greigger teaches that 60 pbw colloidal silica is added to 70 pbw isopropanol, meaning that the silica is added in a 6:7 ratio relative to the organic solvent. Accordingly, when 12 parts by mass colloidal silica is added to the coating composition, as taught by Yanagase, a person having ordinary skill in the art at the time of invention would have added 14 parts by mass organic solvent, which is within the claimed range. This mixture ratio is consistent with teachings of Yanagase and Greigger, as combined above.

(6)

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagase et al. (JP 0916554 A) in view of Fujii et al. (U.S. Publication No. 2002/0134026), as applied to claims 1-3 and 5-10 above, and further in view of Kanomori et al. (JP 2001-11379 A).

With respect to **claim 11**, Yanagase and Fujii, as combined above, teach that the radical polymerizable unit comprises dimethylsiloxane but are silent as to whether it comprises a hydroxyl group.

However, Kanomori, which deals with colloidal silica based coatings, teaches that a polymer containing a hydroxyl group can be used as a component in a coating that exhibits high hardness and improved adhesiveness among other beneficial properties. Abstract.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention to include a radical polymerizable unit comprising a hydroxyl group in the coating composition taught by Yanagase and Fujii, as combined above, because Kanamori teaches that a polymer containing a hydroxyl group can be used as a component in a coating that exhibits high hardness and improved adhesiveness among other beneficial properties. Abstract.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELI S. MEKHLIN whose telephone number is (571)270-7597. The examiner can normally be reached on 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer K. Michener can be reached on 571-272-1424. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ELI S MEKHLIN/  
Examiner, Art Unit 1795

/Jennifer K. Michener/  
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